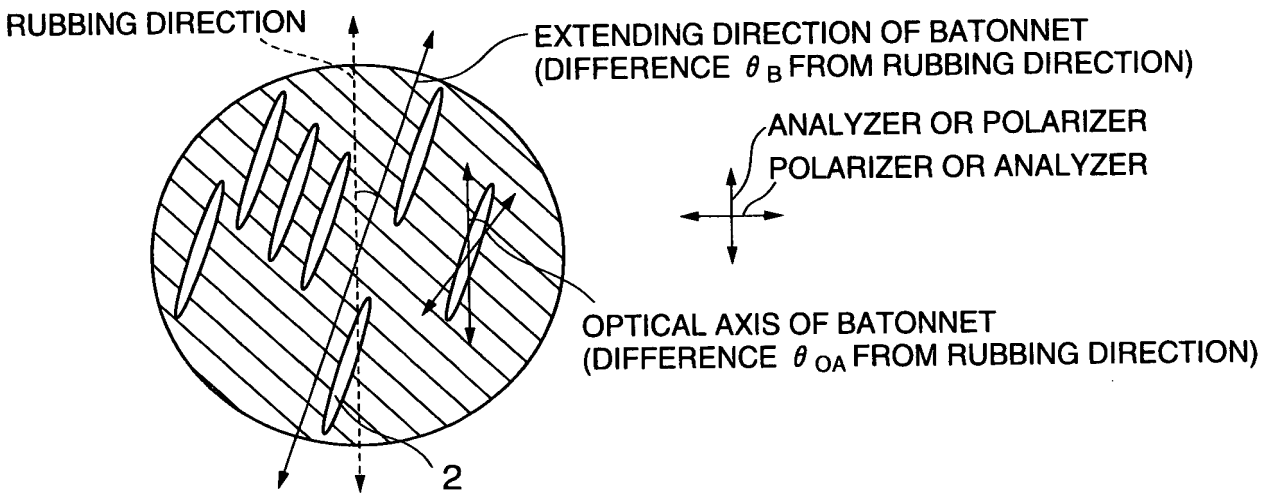

$$|\theta_{OA}-\theta_B| \leqq 1^\circ$$

FIG.1

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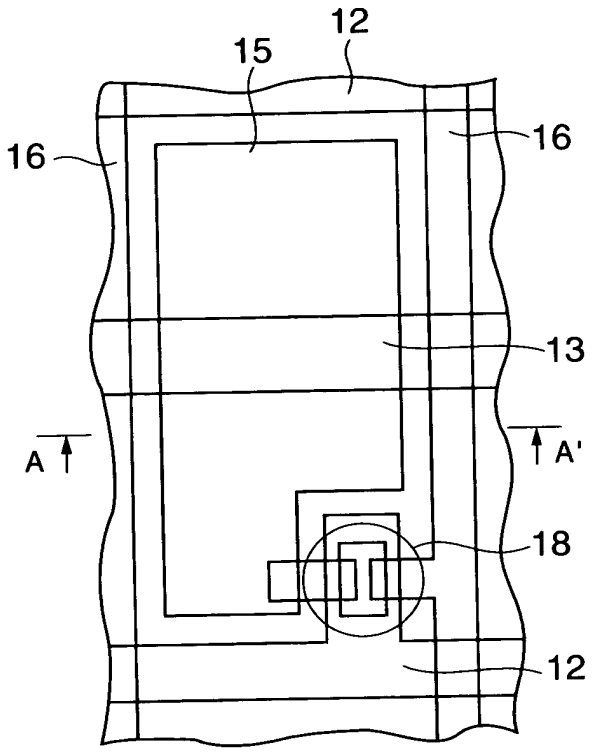
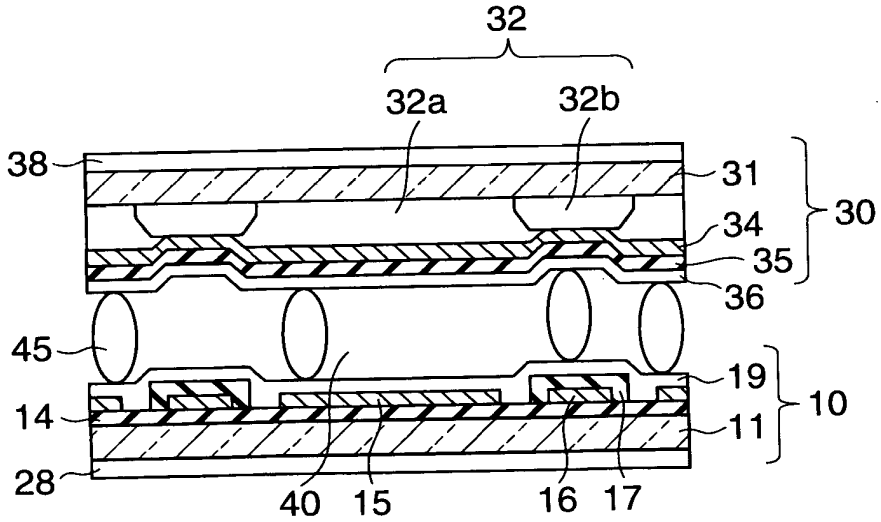


FIG.2A



CROSS SECTION TAKEN ALONG LINE A-A'

FIG.2B

09739975.122000

ALIGNMENT LAYERS, CONTACT ANGLES, EXTENDING DIRECTIONS AND OPTICAL AXES OF BATONNET
(ANGLES SHIFTED FROM RUBBING DIRECTION)

STRUCTURES OF PRINCIPAL CHAIN		(1)				(2)					
ALIGNMENT LAYER MATERIAL		A	A+B (2:1)	A+B (1:2)	B	C	D	D+E (2:1)	D+E (1:2)	E	F
SIDE CHAINS		NONE	PRESENCE	PRESENCE	PRESENCE	NONE	PRESENCE	PRESENCE	PRESENCE	PRESENCE	PRESENCE
PRETILT ANGLES IN NEMATIC LIQUID CRYSTAL [°]		1-2			3	1-2	3-4			6-9	90
CONTACT ANGLES[°]	(H2O)	30.0	30.4	31.3	31.2	25.4	26.3	27.0	28.7	30.2	30.4
	(CH2I2)	4.2	5.4	7.5	10.5	5.4	6.2	7.6	10.1	11.5	12.4
① SURFACE TENSION	[dyn/cm]	51.2	50.8	49.7	48.8	54.0	53.1	52.2	50.1	48.5	48.0
② EXTENDING DIRECTION [°] (OPTICAL AXIS [°]) OF BATONNET	a(Ps=210)	5(5)	-(-)	-(-)	7(7)	0(7)	8(8)	-(-)	-(-)	-(-)	-(-)
	b(160)	5(5)	-(-)	-(-)	5(5)	2(7)	5(7)	-(-)	-(-)	-(7)	-(-)
	c(30)	-3(-3)	-(-)	-(-)	-4(-4)	-4(-3)	-3(-4)	-(-)	-(-)	-(-)	-(-)
③ ALIGNMENT CHARACTERISTICS	a(Ps=210)	◎	-	-	○	△	○	-	-	△	※
	b(160)	◎	-	-	×	×	△	-	-	×	※
	c(30)	△	△	○	△	○	○	○	◎	×	※
④ DETERIORATION RATIOS	c(30)	1.7	1.6	1.8	2.0	4.2	1.9	1.8	1.2	1.5	-

FIG.3

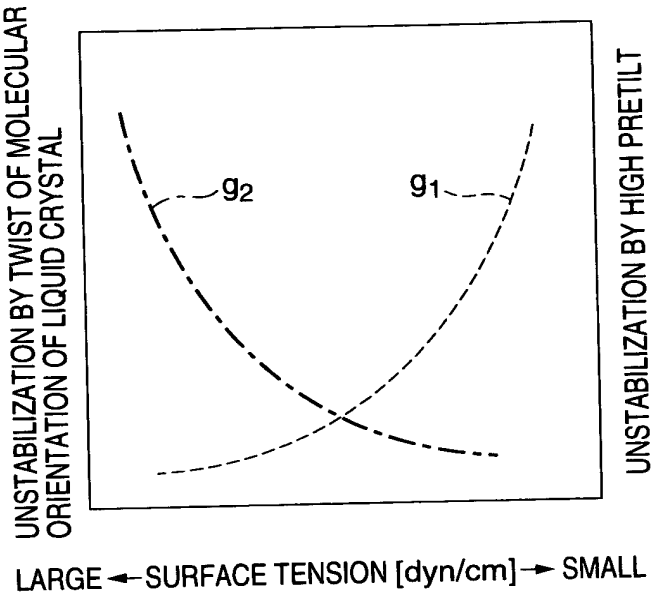

UNSTABILIZATION BY TWIST OF MOLECULAR ORIENTATION OF LIQUID CRYSTAL
UNSTABILIZATION BY HIGH PRETILT
g2
g1
LARGE ← SURFACE TENSION [dyn/cm] → SMALL

FIG.4

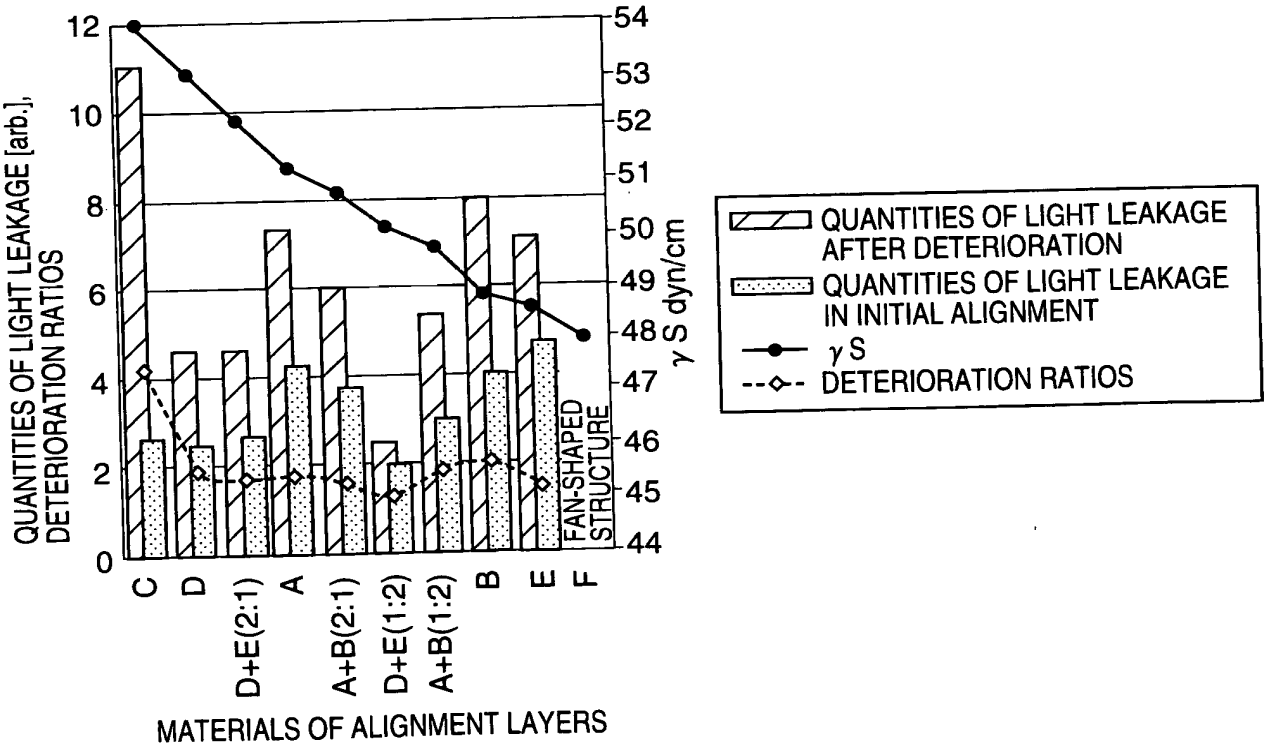

QUANTITIES OF LIGHT LEAKAGE [arb.], DETERIORATION RATIOS
γ S dyn/cm
FAN-SHAPED STRUCTURE
C
D
D+E(2:1)
A
A+B(2:1)
D+E(1:2)
A+B(1:2)
B
E
F
MATERIALS OF ALIGNMENT LAYERS
QUANTITIES OF LIGHT LEAKAGE AFTER DETERIORATION
QUANTITIES OF LIGHT LEAKAGE IN INITIAL ALIGNMENT
γ S
DETERIORATION RATIOS

FIG.5

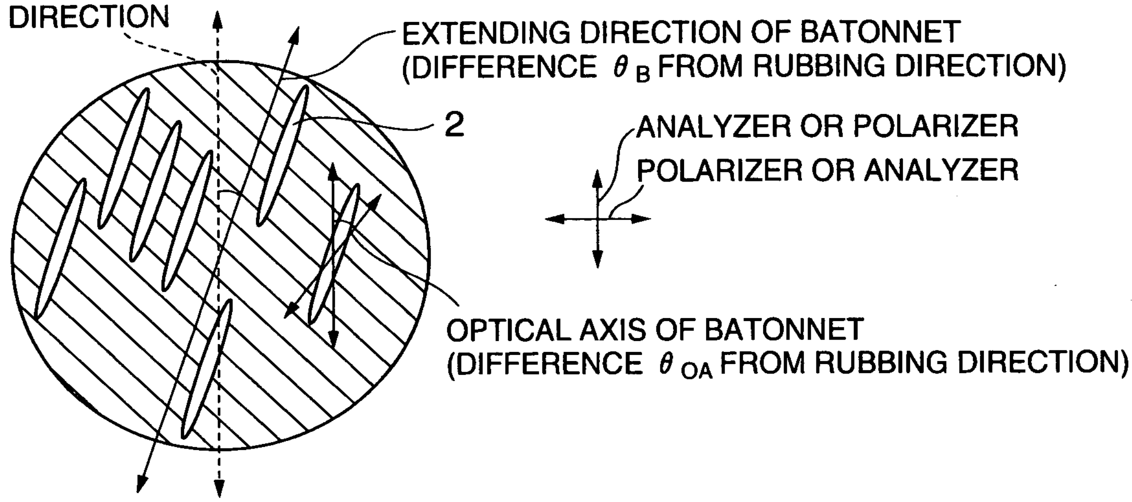


FIG.6

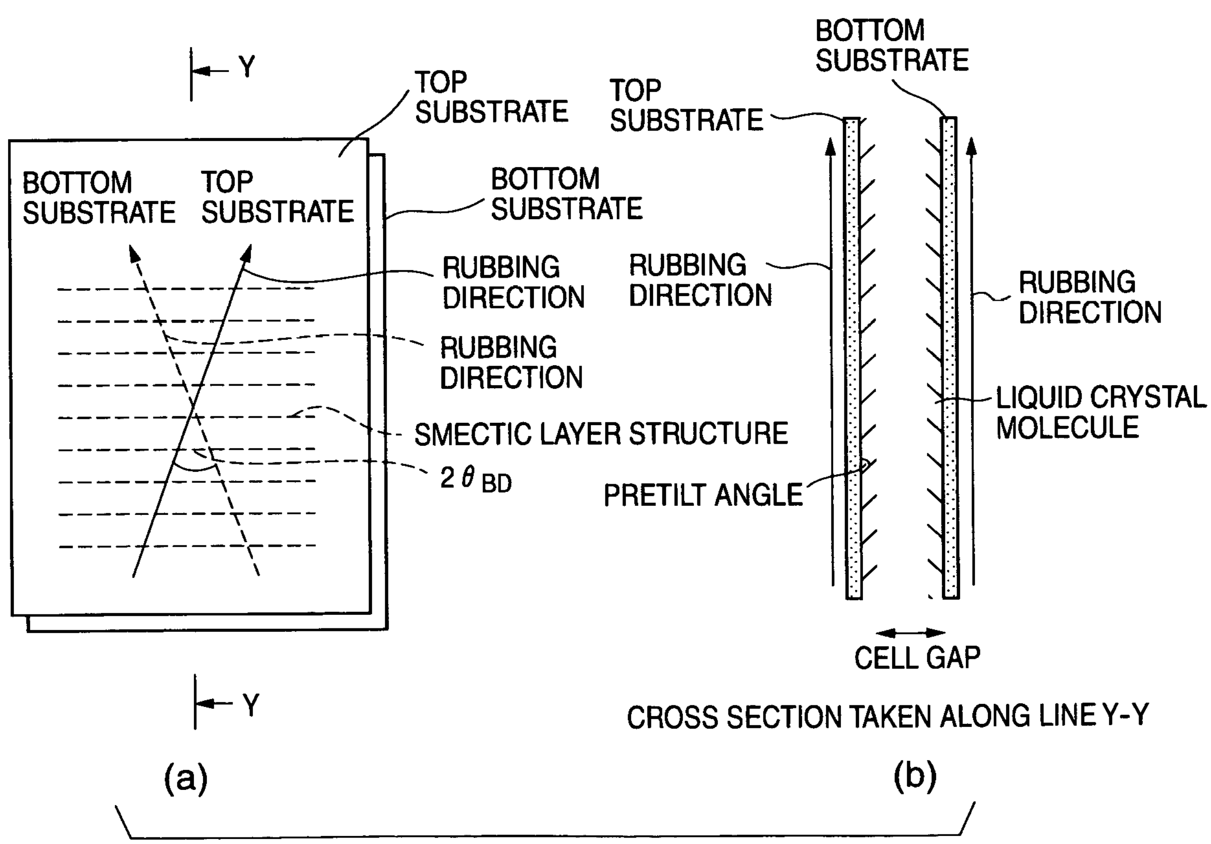


FIG.7

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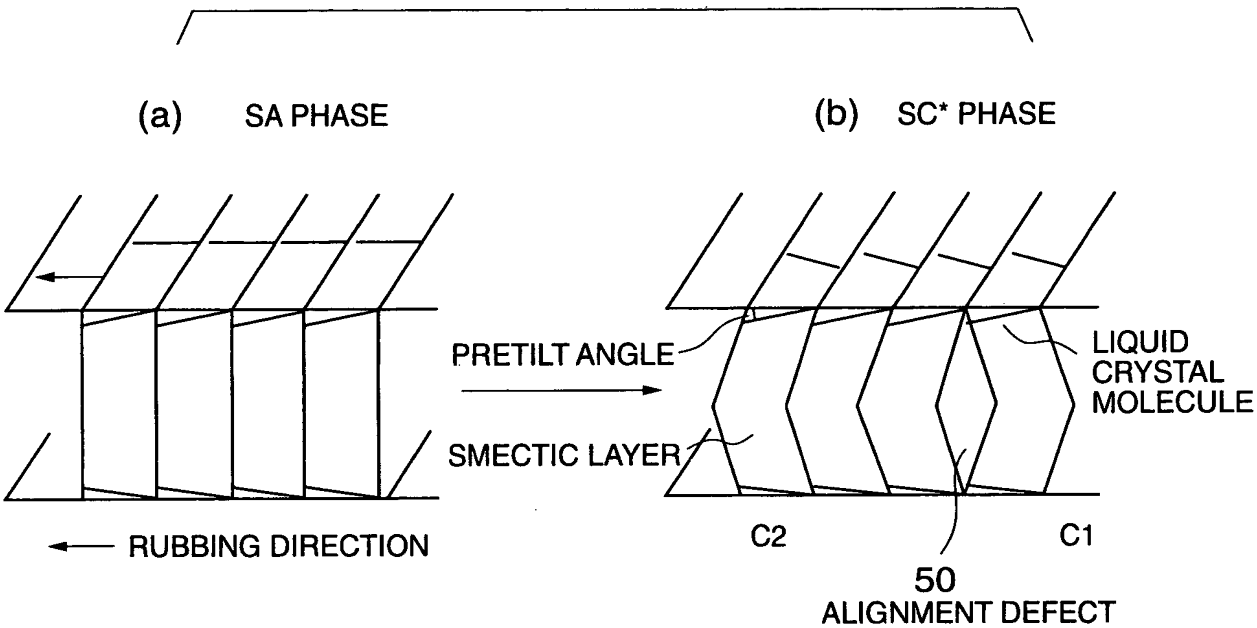

FIG.8

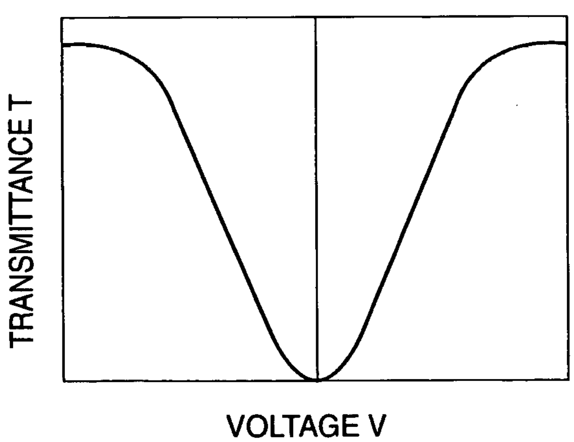

FIG.9

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FIG.10A

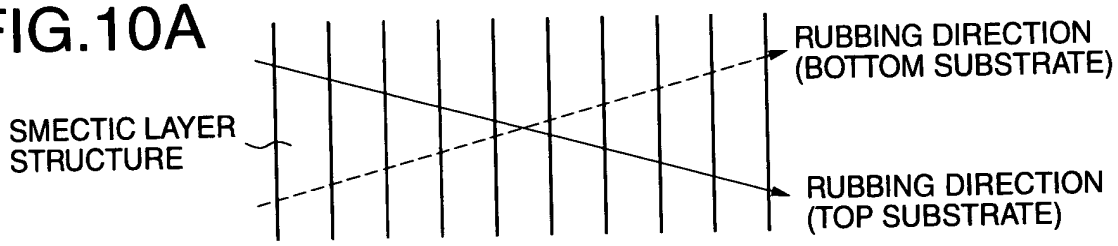


FIG.10B

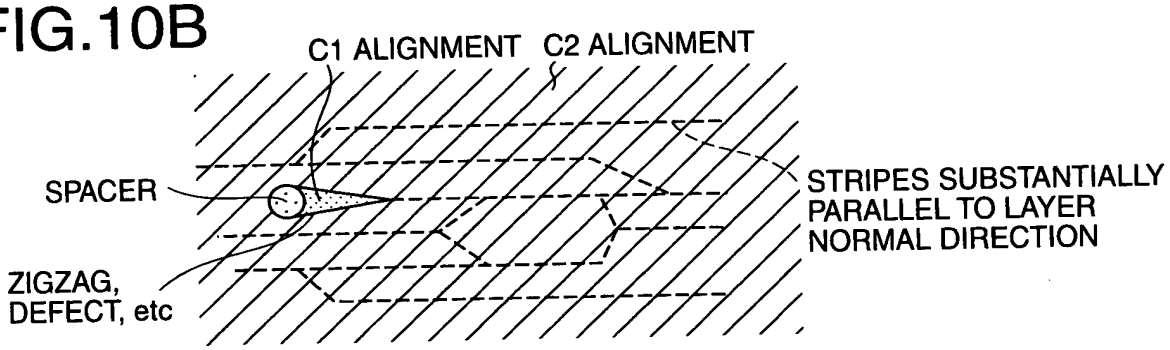


FIG.10C

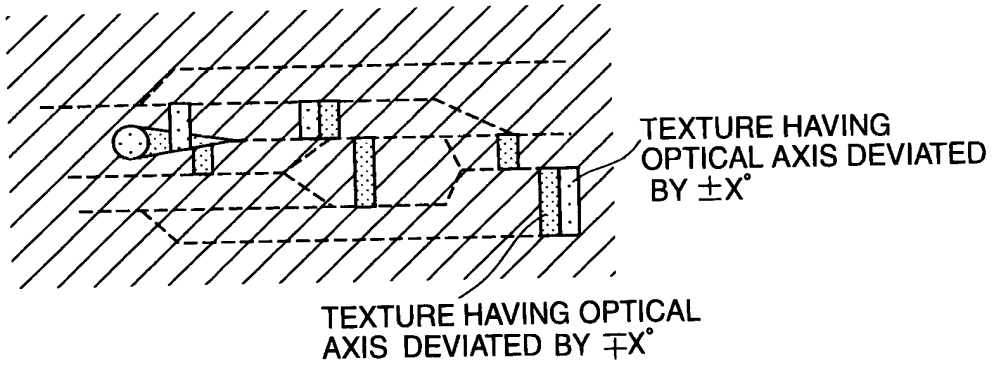
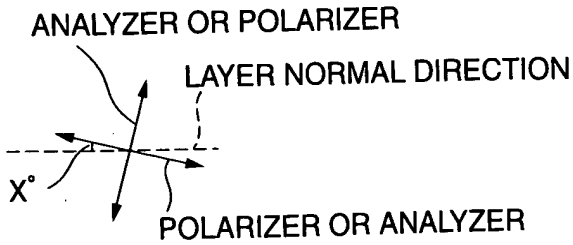


FIG.10D



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